-------claim tree-----------

1----2----3----4----5
+-----7
+-----6

-------112--------------

claim# 1 contains the word -> prefer

--------best-----------
4878951
3970595
5484531
5558109
5139705
4516635
5120716
5804203
3992149
4886082

-------classlist-----------

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514/273
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510/272
134/184
514/23
510/535
134/40
514/887
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134/2
134/109
134/60
510/340

--------keywords---------------

experimental Appearance residue surfactant cleaning anionic formulation allowed tiles fragrance repeated phase Isopropanol Ingredient inventive Ethanol ingredients formulations dispersing cationic nonionic surfactants EDTA alkali Rohm aesthetic oils colorants dyes Fragrances alkaline ammonia alkylene alkanol solvents sold propylene monobutyl halides ethers glycols organic dispersible Vapor extent polymers polyethylene copolymers Foam anhydride
--------references-------------

---------- 4878951
score: 94

keywords: surfactant;cleaning;anionic;formulation;repeated;Ingredient;ingredients;formulations;cationic;nonionic;surfactants;alkali;oils;alkaline;alkylene;alkanol;sold;propylene;polymers;copolymers;Foam;Copolymer;acrylate;alkyl;cleaner;Emulsion;polyacrylate;surfaces;Chemicals;ethoxylated;Carbide;Union;ethoxylate;branched;propoxylated;diphenyl;listed;dilute;cleaners;

e surfactant selected from the group consisting of alkyl
diphenyloxide sulfonates having one or two alkyl groups and one or two
sulfonate groups, the alkyl groups being linear or branched C.sub.4
-C.sub.8 alkyl groups, and (ii) a nonionic surfactant selected from the
group consisting of poly(oxyethylene)/poly (oxypropylene) block copolymers
and polyalkoxylated hydrophobic base compounds such as a linear or
branched aliphatic alcohol, suitably a C.sub.4 -C.sub.10 aliphatic
alcohol; and

(d) 0% to about 15% of a water softening agent stable to the other
components of the formulation, said sulfonate and nonionic surfactants
being present in a ratio of between about 2.5:1 and 3.5:1 and said
nonionic surfactant selected to provide a substantially clear solution
when combined with the remaining ingredients of the formulation.

DETAILED DESCRIPTION OF THE INVENTION

As used herein the term "active chlorine" refers to chlorine equivalent of
the I.sub.2 liberated from potassium iodide when the "active chlorine"
containing agent is titrated with sodium thiosulfate in acid solution. See
Milwidsky, et al., Detergent Analysis, Halstead Press, N.Y., (1982) pp
103-137. Since each hypochlorite ion releases one molecule of I.sub.2
(equivalent to one molecule of Cl.sub.2, MW 71) in this titration, sodium
hypochlorite (MW 74) has an "active chlorine" equivalent of 95%.

In general liquid alkaline chlorinated C.I.P. cleaners commonly contain 5
to 15% sodium or pota

---------- 3970595
score: 87

keywords: surfactant;cleaning;anionic;formulation;allowed;Ingredient;Ethanol;ingredients;formulations;surfactants;EDTA;alkali;Rohm;dyes;alkaline;ammonia;alkylene;alkanol;solvents;sold;propylene;monobutyl;ethers;organic;polyethylene;Foam;alkyl;cleaner;Chemicals;ethoxylated;moles;Carbide;Union;ethoxylate;Detergents;propoxylated;dilute;cleaners;

ad of the potassium hydroxide. The procedure is
otherwise the same.

EXAMPLE III

Instead of ethoxylated higher fatty alcohols, as illustrated by Examples I
and II, ethoxylated alkyl phenols may be used as the non-ionic detergent.
For example, following the procedures and using the proportions of

Examples I or II, alkyl phenol ethoxylates, such as "Triton X-100", "Surfonic N-95", or "Triton N 101" can be employed. Triton X-100 is a paraisooctyl phenol polyethyleneoxy ethanol (9.5 moles ethylene oxide, av. mol. wt. 628) supplied by Rohm & Haas Co., Philadelphia, Pa. Triton N 101 is supplied by the same company and is nonyl phenol polyethyleneoxy ethanol (9.5 moles ethylene oxide, av. mol. wt. 642). Surfonic N-95 is paranonyl phenol polyethyleneoxy ethanol (9.5 moles ethylene oxide, av. mol. wt. 632).

EXAMPLE IV

The base formulation of Example I can be further modified for various specific applications. When the surfactant concentrate is to be used as a degreaser, other ingredients can be incorporated, such as coconut fatty acid alkanolamides, ethylene glycol ethyl ether, triethanolamine, EDTA acid (ethylene diamine tetraacetic acid), ethylene glycol monobutyl ether, and additional water up to a total of 10% water for the complete formulation.

For use as a laundry detergent, the base formulation can incorporate ingredients such as coconut fatty acid alka

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5484531

score: 86

keywords: surfactant;anionic;formulation;cationic;nonionic;surfactants;alkali;alkaline;solvents;propylene;organic;polymers;acrylate;alkyl;cellulose;derivatives;acrylates;polyacrylate;ethoxylated;moles;ethoxylate;secondary;diphenyl;dilute;

l group and chloroacetic acid. The process may also be used for the purification of the sulfobetaines commonly used as amphoteric surfactants.

In addition to the ionic surfactants mentioned, nonionic surfactants may also be purified by the process according to the invention. Typical nonionic surfactants are the reaction products of long-chain alcohols with ethylene oxide or propylene oxide. Another important class of nonionic surfactants are the alkyl polyglycosides. In the case of nonionic surfactants, the purification problem often lies in the fact that inorganic impurities which have served as catalysts in the production process have to be removed. In this case, it may occasionally be necessary initially to convert the catalysts into a water-soluble form by addition of acids or basic compounds.

Finally, special surfactants may also be purified by the process according to the invention. Special surfactants are, for example, perfluorinated surfactants which are used either as anionic surfactants or as nonionic surfactants.

The surfactants mentioned generally have a molecular weight of at least 100 g/mole and, more particularly, in the range from 150 to 500 g/mole.

In one preferred embodiment of the process according to the invention, the surfactant solutions, which are generally aqueous solutions, are subjected to reverse osmosis with 0.0001 to 0,001 .mu.m membranes under a pressure of 5 bar to 80 bar.

In another preferred embodiment of the invention, the aqueous solutions may be subjected to ultrafiltration with membranes having a pore diameter of 0,001 to 0.01 .mu.m under pressures of 1 bar to 20 bar.

The membrane material used is not a critical factor in the process according to the invention and may therefore be freely selected by the expert. Thus, membranes of cellulose acetate, fluorine polymers, polysulfones, polyether sulfones, polyacrylates or zirconium dioxide may be used. Membranes of aluminium oxide or carbon membranes are also suitable.

EXAMPLE

10 kg of an approximately 30% aqueous solution of an amphoteric surfactant (reaction product of chloroacetic acid sodium salt with coconut oil alkyl dimethylamine) with the following composition:

NaCi: 6.6%

glycolic acid: 1.93%

Na chloroacetate: 0.37%

free amine: 0.17%

WAS (washing-active substances): 29.8 %

are diluted with water in a ratio of 1:1 and subjected to membrane separation. By means of a pump, this solution is pumped under a pressure of 10 bar through polysulfone membranes with a cutoff of 5000.

The retentate is thickened to a volume of 10 1 by removal of permeate (initial rate 70 1.m.sup.-2.h.sup.-1).

Diafiltration is then commenced, i.e. as much water is added as permeate is removed for a constant retentate volume.

The demand for diafiltration is determined by measurement in the electronic conductivity of the perm

---------- 5558109
score: 86

keywords: Appearance;residue;surfactant;cleaning;anionic;formulation;Isopropanol;Ingredient;Ethanol;ingredients;nonionic;surfactants;alkali;aesthetic;oils;alkaline;ammonia;alkanol;solvents;sold;propylene;halides;ethers;glycols;organic;dispersible;polymers;polyethylene;copolymers;Foam;anhydride;maleic;homopolymers;acrylic;styrene;Copolymer;methacrylic;Starch;alkyl;cleaner;cellulose;surfaces;ethoxylated;ethoxylate;Neodol;pyrrolidone;Detergents;branched;propoxylated;listed;dilute;cleaners;

R>The pH of the cleaning composition in aqueous concentrate form can range from about 7 to 12.0. With the addition of the alkaline salts a basic pH range of 8.5 to 9.5 is most preferred.

The cleaning composition of the present invention also preferably includes other adjuvants such as corrosion inhibitors, polymeric stabilizing agents, anionic surfactants and hydrotropes to maintain the active ingredients of the composition stable in the aqueous solution.

Particularly useful corrosion inhibitors which can be added to the aqueous metal cleaning composition of this invention include magnesium ions. Preferably, the magnesium ions are provided in water soluble form. Examples of useful water soluble forms of magnesium ions are the water soluble salts thereof including the chlorides, nitrates and sulfates. Particularly preferred is magnesium sulfate which can be readily stabilized in aqueous solution at the lower pH range which characterizes the aqueous concentrates of the present invention. If the alkalinity providing agents, are the alkali metal carbonates, bicarbonates or mixtures of such agents, magnesium oxide can be used to provide the magnesium ion although magnesium oxide is not preferred since it is more difficult to stabilize the magnesium oxide relative to the stabilization of the magnesium sulfate. Other corrosion inhibitors can be utilized including alkali metal silicates although, again, such material is not preferred as it is difficult to stabilize the alkali metal silicate in solution at lower pH ranges.

In order to maintain the solubility of the magnesium ion corrosion inhibitors in aqueous solution, in particular, under the mildly alkaline pH conditions of the concentrate of this invention and in the presence of agents which would otherwise cause precipitation of the magnesium ions, e.g., carbonates, phosphates, etc. It has been found advantageous to include a carboxylated polymer to the solution.

The carboxylated polymers may be generically categorized as water-soluble carboxylic acid polymers such as polyacrylic or polymethacrylic acids or vinyl addition polymers. Of the vinyl addition polymers contemplated, maleic anhydride copolymers as with vinyl acetate, styrene, ethylene, isobutylene, acrylic acid and vinyl ethers are examples.

All of the above-described polymers are water-soluble or at least colloidally dispersible in water. The molecular weight of these polymers may vary over a broad range although it is preferred to use

---------- 5139705
score: 74

keywords: surfactant;anionic;formulation;allowed;repeated;phase;Isopropanol;Ingredient;Ethanol;ingredients;cationic;nonionic;surfactants;alkali;dyes;alkaline;alkanol;sold;polymers;Foam;alkyl;Balance;surfaces;ethoxylated;ethoxylate;Emulsifiers;secondary;dilute;

lfate and sulfonates of ethoxylated
alkyl phenols such as Alipal marketed by GAF Corp. of Wayne, NJ. According to the producer's literature, the composition has been evaluated for primary eye irritation n rabbits. 15% and 10% solutions were rated moderately irritating, while a 5% solution was given a mild irritancy rating.

In the preferred embodiment of our invention, a plurality of nonionic surfactants are utilized. The purpose of using such plurality of nonionic surfactants is to do so in a ratio that will permit an adjustment of the vicosity of the resulting composition in water to meet the specific use required. The requirement of the nonionic surfactants is that they be capable of reducing the irritating properties of the anionic surfactant, and also be capable of emulsifying and solubilizing physiologic debris from the surface of the body, particularly oily secretions and collarettes, which are crusted deposits that can form around the eyelash base.

In the best mode of my invention, we prefer to utilize both a relatively

low melting point and a relatively high melting point nonionic surfactant. Surfactants that have been found to be well suited for use in the present composition are a series of nonionic, anti-irritant surfactants which generally are ethoxylated mono and diglycerides derived from coconut oil and tallow or a series of nonionic, anti-irritant surfactants which generally are alkanolamides such as coco monoethanol amide marketed as Carsamide CMEA by Lonza, Inc. of Fair Lawn, NJ and/or lauric mono-isopropanolamide marketed as Cyclomide LIPA by Cyclo Chemical Corp. of Miami, FL. Such nonionic surfactants are non-toxic and nonirritating to the skin or eye at the 100% active level and in aqueous dispersions. Further, they impart anti-irritating properties to anionic surfactants, including sulfosuccinates. Moreover, although the non-ionics are only moderate foamers by themselves, they do not depress the foam of high foaming anionic. By utilizing both relatively low and relatively high melting point nonionics, the viscosity of the finished system can be controlled without the use of thickeners that are themselves potentially irritating. Further, the nonionic surfactants should be good emulsifiers and solubilizers for cosmetic creams and lotions where low irritation properties, emollient and viscosity control characteristics are highly desirable.

In the preferred embodiment of our invention, we utilize a combination of two nonionics, one of which is an ethoxylated glyceryl monococoate, as the relatively low melting point nonionic, and ethoxylated glyceryl monotallowate as the relatively high melting point nonionic. The melting point of the monococoate is about 42.degree. C.; that of the monotallowate is about 53.degree. C. When used in predetermined proportions, the combination of these two nonionic surfactants with the remaining ingredients in an aqueous solution may be manipulated so as to achieve desired viscosity, in addition to the other desirable properties of the nonionics. These nonionic surfactants are sold, respectively, under the trademarks VARONIC LI-67, an ethoxylated glyceryl monococoate which has the relatively low melting point, and VARONIC LI-420, an ethoxylated glyceryl monotallowate which has the relatively high melting point. Both VARONIC polymers are sold by Sherex Chemical Co., Inc. of Dublin, OH.

The third ingredient of the composition that forms the basis of the present invention is what we term: an induced nonionic surfactant. Typical of an induced nonionic surfactant is an amine oxide, which is an effective foam stabilizer for anionic surfactants, particularly for fatty alcohol

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---------- 4516635

score: 69

keywords: surfactant;anionic;allowed;repeated;phase;Isopropanol;Ingredient;inventive;Ethanol;ingredients;
dispersing;nonionic;surfactants;alkali;alkanol;sold;polymers;styrene;alkyl;derivatives;polysaccharide;Emu
lsion;listed;dilute;

ated

alcohols sold under the tradename Alfonic 1412A by Conoco Inc. added in the preferred concentration range of about 0.5% to about 1.5%.

The addition of Alfonic 1412A to a polymer slug following the surfactant also solves two problems encountered in the reutilization of the middle phase in a surfactant slug for chemical flooding. It has been noted in some instances that the injection of a polymer slug following the middle phase significantly increases the pressure change as well as increasing surfactant loss to the core matrix. However, the addition of the Alfonic 1412A solubilizer to the polymer slug in ranges of 0.5% to 1.0% produces a pressure differential and surfactant loss similar to the originally designed surfactant slug and also improves recovery efficiency to a value substantially equal to or surpassing that of the originally designed surfactant system.

The following examples further illustrate the novel surfactant extraction and reutilization method of the present invention. These examples are given by way of illustration and not as limitations on the scope of the invention. Thus, it should be understood that the steps and materials employed in the instant method may be varied to achieve similar results within the scope of the invention.

EXAMPLE 1

A water-in-oil emulsion was prepared to simulate the produced emulsions from a West Texas field in the Permian Basin. The following ingredients were mixed at an elevated temperature of about 40 to 54.degree. C.: 100 cm.sup.3 of the surfactant slug employed in the Permian Basin field, 100 cm.sup.3 of crude oil from the field and 250 cm.sup.3 of formation brine. The 100 cm.sup.3 of surfactant slug had the same make up of that used in

the Permian Basin field, containing 1.6% Witco TRS-18, 1.86% Witco TRS-40, 1.55% Alfonic 1412A, 0.95% sodium cumene sulfonate, 4% gas oil, 4% clean crude oil from the same field, 10% fresh water and formation brine for the remainder.

The prepared emulsion soon separated into two phases, an upper, surfactant-containing water-in-oil emulsion and a lower aqueous phase. 200 cm.sup.3 of the Permian crude was added to the upper emulsion phase. 350 cm.sup.3 of the above diluted

---------- 5120716

score: 63

keywords: surfactant;anionic;phase;Isopropanol;Ingredient;Ethanol;ingredients;cationic;nonionic;surfactants;alkali;dyes;alkanol;propylene;monobutyl;ethers;organic;maleic;alkyl;hydroxyethyl;derivatives;Emulsion;Balance;branched;

ctant, amphoteric surfactant, powder, pigment, dye, preservative antifungal agent, anti-oxidant, UV-ray absorber, chelating agent, water-soluble polymer, montmorilonite, alcohol, solvent, flavor, etc.

More specifically, there may be included polyhydric alcohols such as glycerine, propylene glycol, etc.; oil components such as fluid paraffin, squalane, higher fatty acid, higher alcohol, etc.; organic acids such as citric acid, lactic acid, etc.; alkalis such as caustic soda, triethanolamine, etc.; anionic surfactants such as higher alkylsulfuric acid ester salts, higher alkylethersulfuric acid ester salts, higher fatty acid amide sulfonic acid salts, higher alkylsulfosuccinic acid salts, alkylbenzenesulfonic acid salts, acylglutamic acid salts, higher alkylphosphoric acid salts, etc.; cationic surfactants such as higher alkyl quaternary ammonium salts, fatty amine salts, alkylpyridinium salts, etc.; amphoteric surfactants such as carboxybetaine, sulfobetaine, imidazoline derivatives, etc.; polyoxyethylene alkyl ether, polyoxyethylene fatty acid amide, sorbitan fatty acid esters, fatty acid alkanolamide, polyglycerine fatty acid ester, etc.

The percutaneous absorption promoting agent and the dermatologic preparation according to the present invention have an excellent percutaneous absorption promoting effect of a drug component, and further are percutaneous absorption promoters with a good safety and use feeling.

EXAMPLES

The present invention is described in more detail by referring to Examples, but the present invention is, of course, not limited to these Examples. In the following Examples, "%" represents "% by weight", unless otherwise specifically noted.

EXAMPLE 1-1

Cream

<PRE>

(1)	Dexamethasone	0.025%
(2)	Propylene glycol	8.0
(3)	Glycerine	5.0
(4)	Fluid paraffin	1.0
(5)	Diisopropyl adipate	3.0
(6)	Sodium dodecylsulfate	0.08
(7)	Dodecyldimethylamine oxide	0.16
(8)	Glycerine monofatty acid ester	1.5
(9)	Preservative	q.s.
(10)	Clay mineral (bentonite)	6.0
(11)	Purified water	balance

</PRE>

Preparation Method

To (5) were added (1), (4), (8) and (9) and these components were dissolved and mixed by heating to 70.degree. C. This was called composition (A). The components (6) and (7) were added to a part of (11) to be dissolved therein, followed further by an addition and mixing of the components (2) and (3). This was called composition (B). While composition (B) was stirred at a temperature maintained at 70.degree. C, composition (A) was gradually added to effect preliminary emulsification, followed by emulsification by a homomixer.

The resultant emulsion was added to a dispersion having added

---------- 5804203
score: 61

keywords: experimental;Appearance;residue;surfactant;anionic;formulation;allowed;fragrance;repeated;phase
;Ingredient;Ethanol;ingredients;formulations;cationic;nonionic;surfactants;EDTA;alkali;aesthetic;oils;col
orants;dyes;Fragrances;alkaline;solvents;propylene;glycols;organic;Vapor;extent;Foam;unsaturated;isoprene
;hydroxyethyl;cellulose;derivatives;xanthan;substituted;Emulsion;Chemicals;pyrrolidone;Detergents;Emulsif
iers;secondary;modify;listed;adjunct;

n
creams, lotions or gels, and are generally transparent; liquids usually do not contain emulsifiers. Liquid topical products often contain other solvents in addition to water (including alcohol) and may also contain viscosity adjusters, moisturizers and emollients, fragrances, dyes/colorants/pigments, preservatives and active ingredients.

Suitable emulsifiers for use in the formulations of the present invention include, but are not limited to, Incroquat Behenyl TMS (behentrimonium methosulfate, cetearyl alcohol), non-ionic emulsifiers like polyoxyethylene oleyl ether, PEG-40 stearate, ceteareth-12 (e.g, Eumulgin B-1 manufactured by Henkel), ceteareth-20 (e.g., Eumulgin B-2 manufactured by Henkel), ceteareth-30, Lanette O (manufactured by Henkel; ceteareth alcohol), glyceryl stearate (e.g., Cutina GMS manufactured by Henkel), PEG-100 stearate, Arlacel 165 (glyceryl stearate and PEG-100 stearate), steareth-2 and steareth-20, or combinations/mixtures thereof, as well as cationic emulsifiers like stearamidopropyl dimethylamine and behentrimonium methosulfate, or combinations/mixtures thereof. In addition, cationic emulsifiers are preferably combined or mixed with non-ionic emulsifiers in order to form stable emulsion product forms containing high strontium salt concentrations.

Suitable viscosity adjusting agents (i.e., thickening and thinning agents) for use in the formulations of the present invention include, but are not limited to, protective colloids or non-ionic gums such as hydroxyethylcellulose (e.g., Cellosize HEC QP52,000-H, manufactured by Amerchol), xanthan gum, and sclerotium gum (Amigel 1.0), as well as magnesium aluminum silicate (Veegum Ultra), silica, microcrystalline wax, beeswax, paraffin, and cetyl palmitate. In addition, appropriate combinations or mixtures of these vicosity adjusters may be utilized according to the present invention. A particularly preferred thickening agent for use in the formulations of the present invention, especially in the case of gels/serums, is the nonionic polymer hydroxyethylcellulose, which is compat

---------- 3992149
score: 50

keywords: surfactant;anionic;phase;cationic;surfactants;alkyl;Detergents;dilute;

ysis. Advantages of the method of the present invention over the method of my above-identified application are its greater speed and its greater accuracy for low residual concentrations of surfactants.

DESCRIPTION OF THE DRAWING

The FIGURE presents a simplified flow chart of the method of this invention.

According to this invention, and as shown in the FIGURE, the water sample is treated first with an excess amount of Azure A reagent and an appropriate buffer solution. In the presence of chloroform, the Azure A reacts with residual anionic surfactants and forms a chloroform-soluble, blue-colored complex. The intensity of the blue color in the vigorously rocked and subsequently settled chloroform layer is proportional to the concentration of the Azure A -anionic surfactant complex. The intensity of the Azure A -anionic surfactant complex can then be measured by making spectrophotometric readings of the chloroform solution at the optimum wavelength of the device used, e.g. the optimum wavelength for a Bausch & Lomb Spectronic 600 spectrophotometer is 623 nm. When the chloroform extractant is colorless, the water sample contains no residual anionic surfactant and a new sample is taken and tested for the presence of residual cationic surfactants. The new sample is treated first with an excess amount of methyl orange reagent and an appropriate buffer solution. In the presence of chloroform, the methyl orange will react with residual cationic surfactants and forms a chloroform-soluble, yellow-colored complex. The intensity of the yellow color in the vigorously rocked and subsequently settled chloroform layer is proportional to the concentration of the methyl orange-cationic surfactant complex. The intensity of the

methyl orange-cationic surfactant complex can then be measured by making spectrophotometric readings of the chloroform solution at the optimum wavelength of the device used, e.g. 415 nm for a Bausch & Lomb Spectronic 600 spectrophotometer.

REAGENTS

1. Stock linear alkylate sulfonate (LAS) solution: weigh an amount of the reference material equal to 1.000 g LAS on a 100% active basis, dissolve in distilled water and dilute to one liter to obtain a concentration of 1.00 ml = 1.00 mg LAS. This solution should be stored in a refrigerator to minimize biodegradation.

2. Standard linear alkylate sulfonate (LAS) solution: dilute 50.00 ml of

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score: 41

keywords: cleaning;Vapor;

e to the embodiment of the invention shown in FIG. 2 and as a dip cleaning tank in reference to the embodiments of the invention shown in FIGS. 3 and 4, either device can be used in any of the embodiments of the invention shown and described herein. Similarly, item number 4 is shown and described as a vapor cleaning tank in reference to FIG. 2 and as a finish cleaning tank in reference to FIGS. 3 and 4. Either a vapor cleaning tank or a finish cleaning tank can be used in any of the embodiments of the invention shown or described herein. In the present invention, it can be provided one cooling tube for the distilling tank and other cleaning tank in the same chamber.

Although certain particular embodiments of the invention are herein disclosed for purposes of explanation, various modifications thereof, after study of this specification, will be apparent to those skilled in the art to which the invention pertains, and reference should accordingly be had to the appended claims in determining the scope of the invention. In the present invention, it may be employed a jet stream cleaning tank and a finish tank cleaned up by steam.

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